

TRAFFIC MANUAL

CHAPTER 8 - REGULATIONS

- 8-00 Table of Contents and
List of Figures**
- 8-01 Basic Information**
- 8-02 Parking**
- 8-03 Speed Limits and Zones**
- 8-04 Other Traffic Regulations**



**January
1996**

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CHAPTER 8

TABLE OF CONTENTS

<i>Index No.</i>		<i>Page No.</i>	<i>Date</i>
8-01	BASIC INFORMATION.....	8-1	October, 1974
8-01.1	General.....	8-1	October, 1974
8-01.2	Local Regulations.....	8-1	October, 1974
8-01.3	Investigation by District.....	8-1	October, 1974
8-02	PARKING.....	8-2	January, 1996
8-02.1	Parking Regulations.....	8-2	January, 1996
8-02.2	Policy on Parking Restrictions.....	8-2	January, 1996
8-03	SPEED LIMITS AND ZONES.....	8-4	January, 1996
8-03.1	Introduction.....	8-4	January, 1996
8-03.2	Basic Speed Limit Law.....	8-4	January, 1996
8-03.3	Establishment of Prima Facie and Maximum 70 MPH (112 km/h) Speed Zones.....	8-4	January, 1996
8-03.4	Speed Limit Signs and Markings.....	8-15	January, 1996
8-04	OTHER TRAFFIC REGULATIONS.....	8-16	January, 1996
8-04.1	Through Highways.....	8-16	October, 1974
8-04.2	One-Way Streets.....	8-16	October, 1974
8-04.3	Turning Movements.....	8-16	October, 1974
8-04.4	Truck Routes and Size and Weight Limitations.....	8-16	January, 1996
8-04.5	Restrictions On Use of Freeways.....	8-17	January, 1996

CHAPTER 8

LIST OF FIGURES

<i>Figure No.</i>		<i>Page No.</i>	<i>Date</i>
8-1A	Speed Zone Survey Sheet.....	8-8	January, 1996
8-1B	Speed Zone Survey Sheet.....	8-9	January, 1996
8-2	Cumulative Speed Curve Sheet.....	8-10	January, 1996
8-3	Vehicle Speed Survey Sheet.....	8-11	December, 1988
8-4	Vehicle Speed Survey Sheet [For 40 MPH (64 km/h)and Below]..	8-12	December, 1988

CHAPTER 8 TRAFFIC REGULATIONS

Basic Information 8-01

8-01.1 General

Under California law, traffic regulations for State highways are established:

1. By statute.
2. By the Department of Transportation with formal order of the Director.
3. By local authorities, by ordinance or resolution, approved by the Department of Transportation.

These regulations may cover:

1. Parking.
2. Speed zones.
3. Through streets or highways.
4. One-way streets.
5. Turning movements.
6. Truck routes, and size and weight limits.
7. Restriction on use of freeways.
8. Lane designation.
9. Designation of freeway lanes for high occupancy vehicles.
10. Uniform traffic control devices.
11. Roadway markings.
12. Miscellaneous regulations.

8-01.2 Local Regulations

All ordinances and resolutions by local authorities, requiring approval by the Department shall contain a clause providing that the ordinance or resolution shall cease to be effective six months after receipt by the local authorities of written notice of withdrawal of approval by the Department of Transportation.

Omnibus type or master ordinances such as may be proposed by the League of California Cities should contain the following two clauses:

1. Any provision of this ordinance which regulates traffic or delegates the regulation of traffic upon State highways in any way for which the approval of the Department of Transportation is required by State law, shall cease to be operative six months after receipt by the City Council of written notice of withdrawal of approval of the Department of Transportation.
2. Whenever this ordinance delegates authority to a city officer, or authorizes action by the City Council to regulate traffic upon a State highway in any way which by State law requires the prior approval of the Department of Transportation, no such officer shall exercise such authority nor shall such action by the City Council be effective with respect to any State highway without the prior approval in writing of the Department of Transportation when and to the extent required by the Vehicle Code.

8-01.3 Investigation by District

Orders, ordinances and resolutions by local authorities which require approval by the Department should be submitted in draft form by local authorities to the District Director of Transportation. The District Director will make a complete investigation of proposed regulations in a timely manner.

Parking 8-02

8-02.1 Parking Regulations

Section 22520 of the Vehicle Code prohibits the stopping, parking or leaving of any vehicle upon a freeway which has full control of access and no crossing at grade. Large type R26 or R45 signs may be installed on such freeways to inform traffic of the prohibition. Since this regulation is in the Code, the signs may be posted without a Director's order.

Parking on other State highways may be restricted or prohibited under Sections 22505 and 22506 of the Vehicle Code. Section 22505(a) permits the Department to restrict parking under the following conditions:

1. In areas where, in its opinion, stopping, standing, or parking increases the risk of an accident to those using the highway or where the stopping, standing, or parking of vehicles would unduly interfere with the free movement of traffic thereon.
2. In areas within one-half mile (0.8 km) of the boundary of any unit of the state park system which the Director of Conservation has determined are unusually high fire hazard areas, upon notification of the Department of Transportation of such determination by the Director of Conservation.
3. In areas within one-half mile (0.8 km) of the boundary of any unit of the state park system which the county health officer has determined are areas where a substantial public health hazard would result if camping were allowed, upon notification of the Department of Transportation of such determination by the county health officer.

Parking may be restricted or prohibited by local authorities by ordinance or resolution if such ordinance or resolution is first submitted to and approved by the Department. Restrictions on State highways within incorporated cities are best effected with the concurrence of the city. The preferred procedure is for the city to enact the

regulation. However, if the Department determines that any of the three conditions under Vehicle Code Section 22505(a) are met, the Department is authorized to post appropriate signs regulating parking without the concurrence of local authorities since the Vehicle Code places the final decision and responsibility on the Department.

The District Director of each transportation district is authorized to issue orders prohibiting or restricting the parking of vehicles on State highways. The District Director is also authorized to approve ordinances or resolutions of local authorities prohibiting or restricting parking on State highways.

Section 22506 of the Vehicle Code provides that where all or some function of maintenance of a State highway is delegated to a City, the authority to regulate parking on that highway may also be delegated to the City. The delegation of maintenance activities to local authorities is usually exercised under the authority of Streets and Highways Code Section 130. Under a proposal to delegate maintenance and parking regulation authority under Vehicle Code Section 22506, the Department shall retain the authority to regulate parking under the three conditions specified in Vehicle Code Section 22505(a) stated above. The District Director of Transportation is authorized to make this delegation of authority.

Prohibitions or restrictions enacted by local authorities under Sections 22506 or 22507 may be indicated by marking curbs as prescribed by Section 21458 of the Vehicle Code.

8-02.2 Policy on Parking Restrictions

A. *No Parking Permitted at Any Time.* Parking should be prohibited at locations where the prohibition would reduce the risk of collisions or where parking would unduly interfere with the movement of traffic. Major factors that may be considered include:

1. Narrow roadway width.
2. Restricted visibility at intersections for pedestrian and vehicular traffic.
3. Narrow shoulder width.
4. Conversion of a parking lane to a through lane or right-turn lane.

B. **Limited Time Parking.** The Department does not issue orders for limiting time parking. However, such restrictions may be initiated by local authorities and approved by the Department. Parking prohibitions between certain hours may also be initiated by local authorities. Before time limit parking regulations are approved in rural areas, assurance must be obtained from the enforcement agency that the regulation will be enforced.

C. **Parking Meter Zones.** Section 22508 of the Vehicle Code provides that local authorities may, by ordinance, provide for the establishment of parking meter zones and cause streets and highways to be marked with white lines designating parking spaces. Where the proposed zones are on State highways, the ordinances must be approved by the Department of Transportation. The District Directors have been delegated the authority to approve such ordinances.

Local authorities shall furnish a sketch or map showing the definite location of all parking meter stalls on State highways before departmental approval is given.

The desirable dimensions of parking meter stalls are 2.4 m •by 7.3 m with a minimum length of 6.1 m.

At all intersections, one stall length on each side measured from the crosswalk or end of curb return shall have parking prohibited. A clearance of 1.8 m •measured from the curb return shall be provided at alleys and driveways. At signalized intersections parking should be prohibited for a minimum of two stall lengths on the near side and one stall length on the far side (see Chapter 6, PARKING STALL MARKINGS).

The departmental approval for the installation of the parking meters shall be covered by an encroachment permit.

D. **Angle Parking.** Section 22503 of the Vehicle Code permits local authorities by ordinance to establish angle parking. However, the Department does not approve ordinances establishing angle parking on State highways.

E. **Loading Zones.** Local authorities are authorized by Section 21112 of the Vehicle Code to license and regulate the location of stands on streets and highways for use of taxicabs and other public carriers for hire. Where such stands are located on State highways, and highway maintenance is not delegated to the local authority, the approval of the Department is required. The District Directors have been delegated authority to approve local ordinances establishing such stands.

Loading zone ordinances restricted for certain segments of traffic such as "hotel patrons only" will not be approved. Bus stand ordinances are generally approved. Whenever practicable, bus stands shall be located on the far side of the intersection.

Speed Limits and Zones 8-03

8-03.1 Introduction

Speed limits in California are governed by the California Vehicle Code, Sections 22348 through 22413.

The statutes establish or provide means of establishing speed limits by:

1. Basic speed limit law.
2. Prima facie speed limits specified by statute or established by the State or local authorities within their respective jurisdictions on the basis of an engineering and traffic survey.

8-03.2 Basic Speed Limit Law

Section 22350 of the Vehicle Code provides that no person shall drive a vehicle upon a highway at a speed greater than is reasonable or prudent having due regard for weather, visibility, traffic and the surface and width of the highway, and in no event at a speed which endangers the safety of persons or property. This is the basic speed limit law.

Prima facie speed limits are specific limits stated in the Vehicle Code or specific limits established on the basis of an engineering and traffic survey authorized by the Vehicle Code. The prima facie speed limits are preempted by the basic speed limit law when the conditions in Vehicle Code Section 22350 are met.

8-03.3 Establishment of Prima Facie and Maximum 70 MPH Speed Zones

A. *Legal Authority*

The District Director of each transportation district is authorized to issue orders regulating the speed of traffic, up to and including 65 miles per hour (104 km/h), as described in Sections 2, 3, 5, and 8. The Director of the Department of Transportation retains the authority to approve orders under sections 6, 9, and 10.

1. *65 MPH Speed Limits -*

Section 22349 (a) of the Vehicle Code states:

"Except as provided in Section 22356, no person shall drive a vehicle upon a highway at a speed greater than 65 miles per hour (104 km/h)."

2. *55 MPH Speed Limits -*

Section 22349 (b) of the Vehicle Code states:

"Notwithstanding any other provision of law, no person shall drive a vehicle upon a two-lane, undivided highway at a speed greater than 55 miles per hour (88 km/h) unless that highway, or portion thereof, has been posted for a higher speed by the Department of Transportation or appropriate local agency upon the basis of an engineering and traffic survey." The posted speed limit shall not exceed 65 miles per hour (104 km/h).

3. *65 MPH Implementation Restriction -*

Section 22349.5 (a) of the Vehicle Code states:

"Notwithstanding any other provision of law, no person shall drive a vehicle upon a multilane highway with more than two lanes, excluding any freeway, at a speed greater than 55 miles per hour (88 km/h) unless that highway has been posted for a different speed by the Department of Transportation or appropriate local agency on the basis of an engineering and traffic survey." This section expires on January 1, 1997 unless reenacted.

4. *55 MPH for Designated Vehicles -*

Section 22406 of the Vehicle Code provides that no person shall drive any of the following vehicles on a highway at a speed in excess of 55 miles per hour (88 km/h):

- a. A motortruck or truck tractor having three or more axles or any motortruck or truck tractor drawing any other vehicle.
- b. A passenger vehicle or bus drawing any other vehicle.

- c. A school bus transporting any school pupil.
- d. A farm labor vehicle when transporting passengers.
- e. A vehicle transporting explosives.
- f. A trailer bus as defined in Vehicle Code Section 636.

5. ***Less than 65 MPH on State Highways -***

Section 22354 of the Vehicle Code states that:

“Whenever the Department of Transportation determines upon the basis of an engineering and traffic survey that the limit of 65 miles per hour (104 km/h) is more than is reasonable or safe upon any portion of a state highway where the limit of 65 miles per hour (104 km/h) is applicable, the department may determine and declare a prima facie speed limit of 60 (96), 55 (88), 50 (80), 45 (72), 40 (64), 35 (56), 30 (48) or 25 (40) miles per hour (km/h), whichever is found most appropriate to facilitate the orderly movement of traffic and is reasonable and safe, which declared prima facie speed limit shall be effective when appropriate signs giving notice thereof are erected upon the highway.”

Vehicle code Section 22354.5 requires the Department of Transportation, prior to increasing or decreasing a speed limit pursuant to Section 22354, to consult with the Department of the California Highway Patrol. Section 22354.5 authorizes a city or a county, at its option, to conduct a public hearing on the proposed increase or decrease. The Department of Transportation shall take into consideration the recommendations of the Department of the California Highway Patrol and the results of the public hearing in determining whether to increase or decrease the speed limit.

6. ***Variable Limits on Freeways -***

Section 22355 of the Vehicle Code provides that whenever the Department of Transportation determines upon the basis of an engineering and traffic survey that a variable speed limit would facilitate the orderly movement of traffic on any State highway which is a freeway, the Department may erect signs displaying the different speed limits at various times of day and night.

7. ***Local Roads and Streets -***

Section 22352 establishes prima facie speed limits as follows:

- a. Fifteen miles per hour (24 km/h).
 - At a railroad grade crossing with an obstructed view.
 - At an uncontrolled highway intersection with an obstructed view.
 - On an alley.
- b. Twenty five miles per hour (40 km/h).
 - On any highway other than a State highway in any business or residence district, unless a different limit is established by procedures described elsewhere in the code.
 - In a school zone. (Refer to Traffic Manual, Section 10-02.1)
 - When passing a facility primarily used by senior citizens and contiguous to a street other than a State highway.

Vehicle Code Sections 235 and 515 define a "business district" and a "residence district" respectively. Section 240 of the Code prescribes a method for determining whether a highway is within a business or residence district.

Sections 22357 and 22358 authorize local authorities to establish prima facie speed limits on streets and roads under their jurisdiction on the basis of an engineering and traffic survey.

Section 22357.1 authorizes local agencies, by resolution or ordinance, to set a prima facie speed limit of 25 miles per hour (40 km/h) on any street, other than a state highway, adjacent to a childrens playground in a public park during hours when children are expected to use the facilities.

Section 22358.3 authorizes local agencies to reduce prima facie speed limits to 20 (32) or 15 (24) mph (km/h) on narrow streets on the basis of an engineering and traffic survey.

Section 22358.4 authorizes local agencies to reduce prima facie speed limits to 20 (32) or 15 (24) mph (km/h) in school zones or near senior citizen centers on the basis of an engineering and traffic survey.

8. ***Truck Speed Limits -***

Under Section 22407 of the Vehicle Code, the Department may, on the basis of engineering studies and a traffic survey, establish speed limits of 50 (80), 45 (72), 40 (64), 35 (56), 30 (48), 25 (40) or 20 (32) miles per hour (km/h) for trucks with three or more axles and with a manufacturer's gross weight rating of 10,000 pounds (4,536 kg) or more on descending grades.

9. ***Minimum Speed Limits -***

Section 22400 of the Vehicle Code provides that the Department may, on the basis of an engineering and traffic survey, establish a minimum speed limit, below which it shall be unlawful for any vehicle to be driven, except when necessary for safe operation or in compliance with law.

10. ***70 MPH Maximum Speed Limits -***

Section 22356 of the Vehicle Code allows the Department of Transportation, after consultation with and the approval of the Department of the California Highway Patrol, upon the basis of an engineering and traffic survey on existing highway segments, or upon the basis of appropriate design standards

and projected traffic volumes in the case of newly constructed highway segments, to declare 70 mile per hour (112 km/h) maximum speed limits for vehicles not subject to Section 22406.

Highways to be considered for 70 mile per hour (112 km/h) maximum speed limit shall meet the following criteria:

- a. They should be rural freeways constructed to Interstate Freeway standards.
- b. The traffic volumes should be moderate in relation to the capacity of the facility.
- c. The collision rate should be near, or lower than average for rural freeways.
- d. The interchanges should be widely spaced.

On existing rural freeways, it is required that a speed zone survey report be made. This report should include, where applicable, the following items:

- a. Average daily peak hour and traffic volumes.
- b. Percentage of trucks.
- c. Collision and fatality rates (three years if available).
- d. Speed checks.
- e. Minimum sight distance.
- f. Smallest radius curve.
- g. Maximum grade.
- h. Statement of Highway Patrol approval.
- i. Comments and recommendations.

The District's requests for 70 mile per hour (112 km/h) speed limits must include the exact description of the limits of the zone with ties to easily identifiable features such as structures or stream crossings.

The Director of the Department of Transportation, with the concurrence of the California Highway Patrol, retains the authority to approve orders establishing 70 mile per hour (112 km/h) speed limits.

11. *Speed Trap* -

Section 40802(b) provides that prima facie speed limits established under Sections 22352(b)(1), 22354, 22357, 22358 and 22358.3 may not be enforced by radar unless the speed limit has been justified by an engineering and traffic survey within the last five years.

Under Section 40802(b) an engineering and traffic survey is required where enforcement involves the use of radar or other electronic speed measuring devices. Local streets and roads, as defined in Section 40802(b), primarily serving abutting residential property, are exempt from this requirement.

B. *Engineering and Traffic Surveys*

Section 627 of the Vehicle Code defines the term engineering and traffic survey and lists its requirements. Section 627 states: "An engineering and traffic survey shall include, among other requirements deemed necessary by the Department of Transportation, consideration of all of the following: prevailing speeds as determined by traffic engineering measurements; accident records; and highway , traffic, and roadside conditions not readily apparent to the driver."

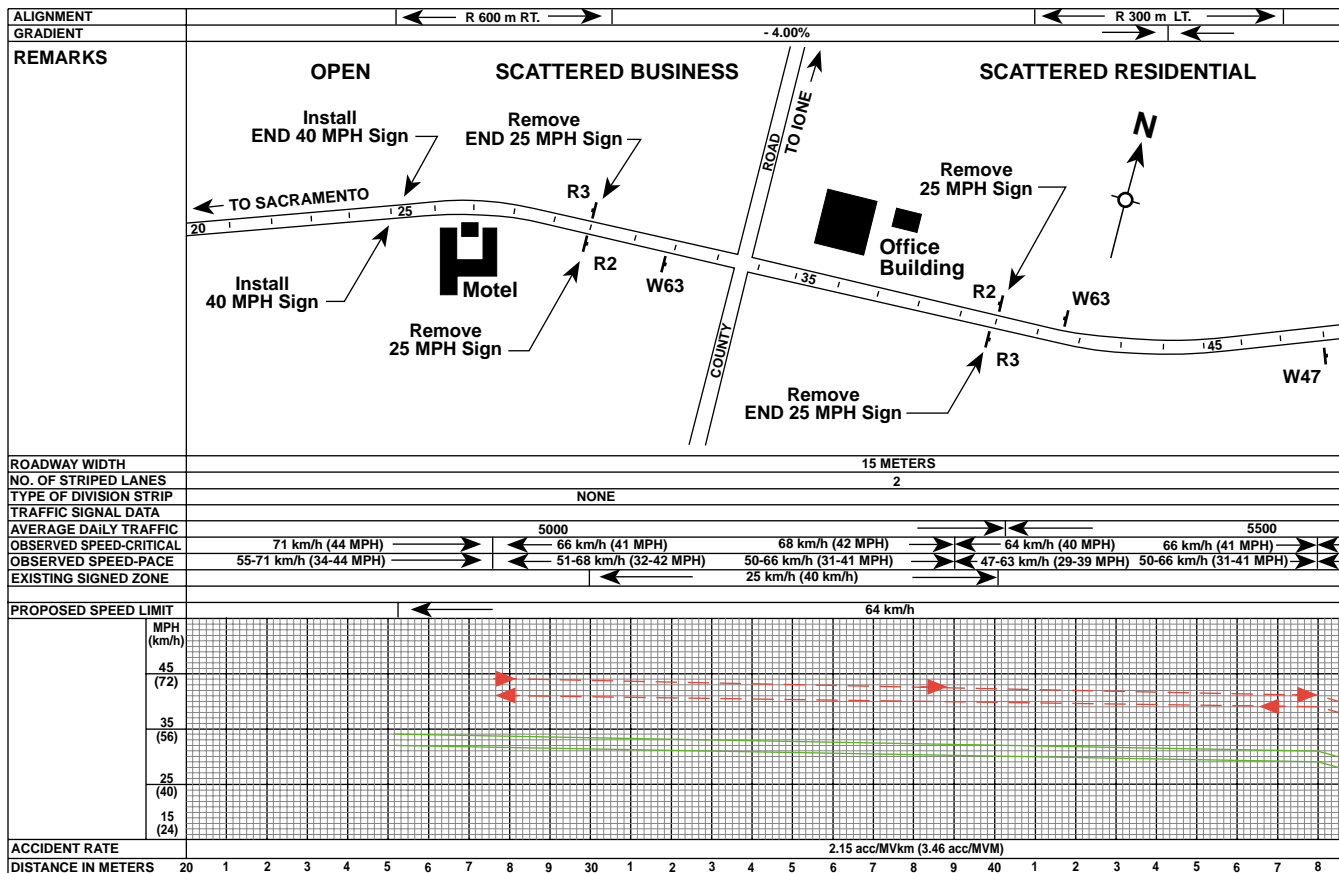
The Engineering and Traffic Survey should contain sufficient information to document that the conditions of CVC Section 627 have been complied with and that other conditions not readily apparent to a motorist are properly identified.

Prevailing speeds are determined by a speed zone survey. Guidelines for a speed zone survey include:

- The intent of the speed measurements is to determine the actual speed of the unimpeded traffic. The speed of traffic should not be altered by concentrated law enforcement, or other means, just prior to, or while taking the speed measurements.

- Only one person is required for the field work. Speeds can be read directly from a radar meter.
- Devices, other than radar, capable of accurately distinguishing and measuring the unimpeded speed of free flowing vehicles unaffected by platoon movement may be used. Special application of devices other than radar are particularly appropriate on low volume facilities.
- A location should be selected where prevailing speeds are representative of the entire speed zone section. If speeds vary on a given route, more than one speed zone section may be required, with separate measurements for each section. Locations for measurements should be chosen so as to minimize the effects of traffic signals or stop signs.
- Speed measurements should be taken during off-peak hours on weekdays. If there is difficulty in obtaining the desired quantity, speed measurements may be taken during any period with free flowing traffic. The weather should be fair with no unusual conditions prevailing. The surveyor and equipment must not affect the traffic speeds. For this reason, an unmarked car is recommended, and the radar speed meter located as inconspicuously as possible. The meter should be placed to survey traffic in both directions, and it should not make an angle greater than 15 degrees with the roadway centerline.
- In order for the sample to be representative of the actual traffic flow, the minimum sample should be 100 vehicles in each survey. In no case should the sample contain less than 50 vehicles.
- Short speed zones of less than 0.8 km should be avoided, except in transition areas.

Figure 8-1A
SPEED ZONE SURVEY SHEET



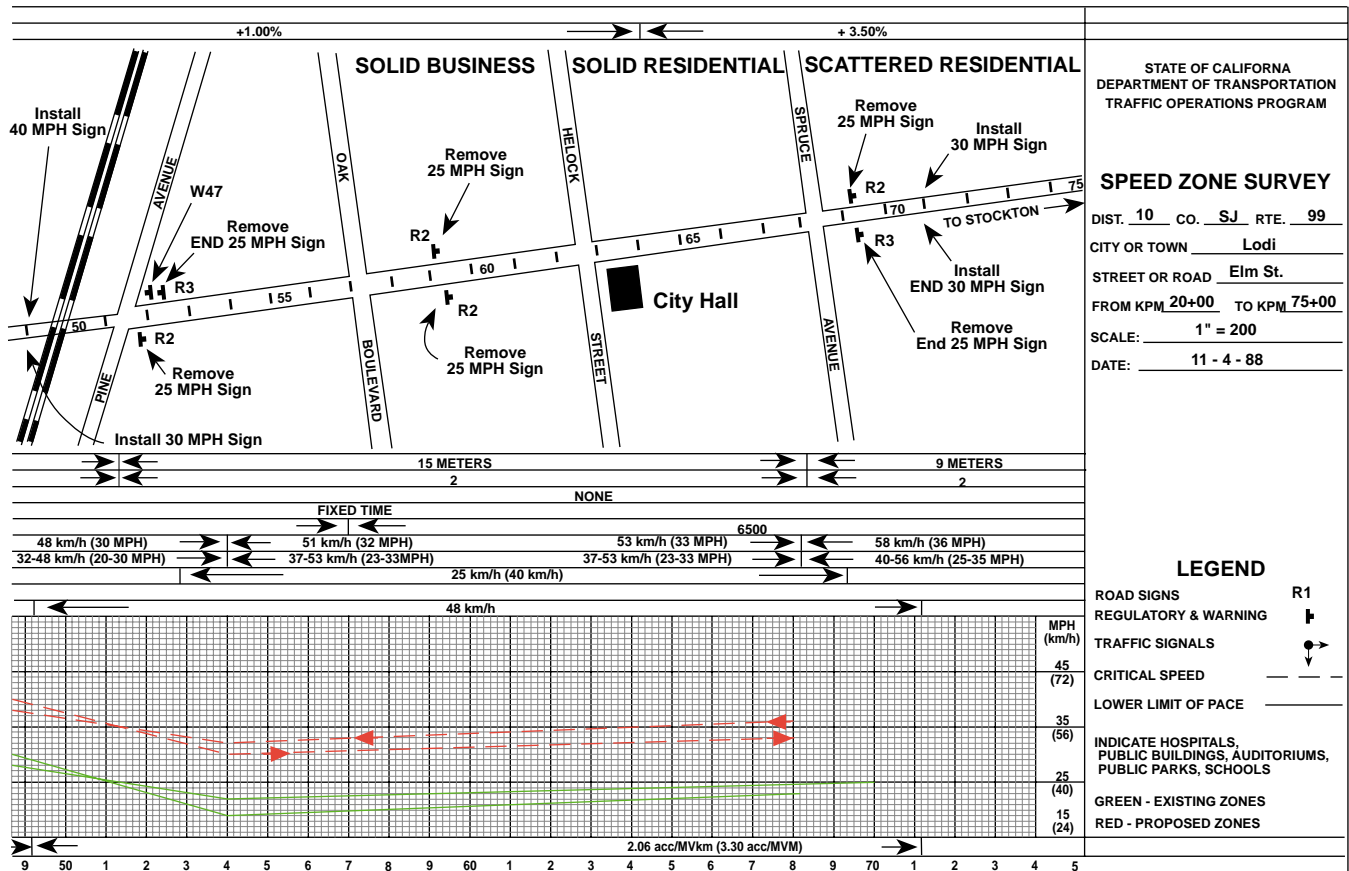
- Speed zone changes should be coordinated with changes in roadway conditions or roadside development.
- The speed limit normally should be established at the first five mile per hour increment below the 85 percentile speed. However, in matching existing conditions with the traffic safety needs of the community, engineering judgement may indicate the need for a further reduction of five miles per hour.
- Speed zoning should be in 10 mile per hour (16 km/h) increments except in urban areas where 5 mile per hour (8 km/h) increments are preferable.
- Speed zoning should be coordinated with adjacent jurisdictions.

- Section 22358.5 of the Vehicle Code states that it is the intent of the Legislature that physical conditions such as width, curvature, grade and surface conditions, or any other condition readily apparent to the driver, in the absence of other factors, would not require special downward speed zoning.

Following are two methods of conducting engineering and traffic surveys to be used to establish or justify prima facie speed limits. These methods are presented as required by the Vehicle Code.

1. State Highways - The engineering and traffic survey for State highways is made under the direction of the District Traffic Engineer. The data shall include:

Figure 8-1B
SPEED ZONE SURVEY SHEET



a. One copy of the Standard Speed Zone Survey Sheet (See Figures 8-1A and 8-1B) showing:

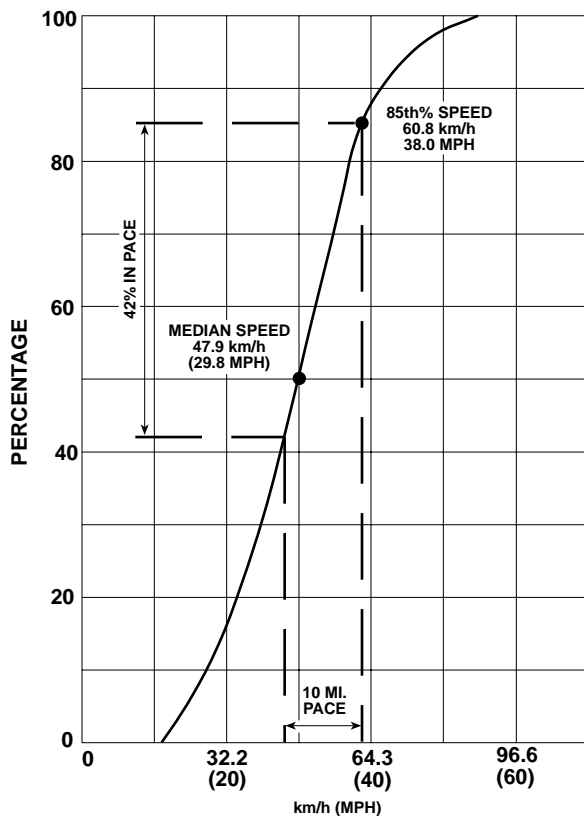
- A north arrow.
- Engineer's station or post mileage.
- Limits of the proposed zones.
- Appropriate notations showing type of roadside development, such as "scattered business", "solid residential", etc. Schools adjacent to the highway should be shown, but other buildings need not be plotted unless they are a factor in the speed recommendation or the point of termination of a speed zone.
- Collision rates for the zones involved.
- Average daily traffic volume.
- Location of traffic signals, signs and markings.

- If the highway is divided, the limits of zones for each direction of travel.
 - Plotted 85 percentile and pace speeds at location taken showing speed profile.
- b. A report to the District Director shall:
- State the reason for the initiation of speed zone survey.
 - Give recommendations and supporting reasons.
 - List the enforcement jurisdictions involved and the recommendations and opinions of those officials.
 - Give the stationing or mileage at the beginning and ending of each proposed zone and any intermediate equations. Location ties must be given to readily identifiable physical features.

**Figure 8-2
CUMULATIVE SPEED CURVE SHEET**

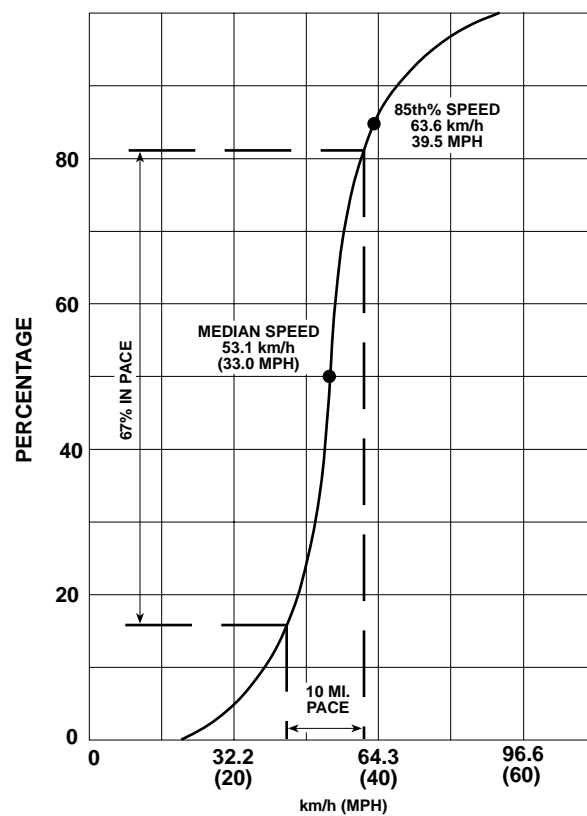
AVERAGE km/h 51.0 MPH 31.7
 NO. OF VEHICLES 100
 DIRECTION NORTH

85th PERCENTILE km/h 61.2 MPH 38.0
 PACE km/h / MPH 45.1/28.0 TO 61.2/38.0



AVERAGE km/h 54.2 MPH 33.9
 NO. OF VEHICLES 100
 DIRECTION SOUTH

85th PERCENTILE km/h 63.6 MPH 39.5
 PACE km/h / MPH 45.1/28.0 TO 61.2/38.0



SPEED ZONE SURVEY

DIST. 01 CO. HUM RTE. 1 km (MI) 15.61 (9.7)

DATE 5 - 5 - 89 TIME: FROM 11:40 AM TO 1:30 PM

PRESENT SIGNED ZONE None MPH

Pepperwood Sta. 505±

Figure 8-3
VEHICLE SPEED SURVEY SHEET
FOR CITY AND COUNTY THROUGH HIGHWAYS,
ARTERIALS, AND COLLECTOR ROADS

Jurisdiction _____ Date _____

Location _____ Weather _____

Recorder _____ Begin Time _____ End Time _____

MPH	NUMBER OF VEHICLES						PERCENT OF TOTAL	CUMULATIVE PERCENTAGE
	5	10	15	20	25	30		
65								
60								
55								
50								
45								
40								
35								
30							1	100
							5	99
							4	94
							8	90
							5	82
							9	77
25							9	68
							15	59
							11	44
							7	33
							7	26
20							9	19
							1	10
							5	9
							2	4
							1	2
15							1	1
TOTAL NUMBER OF VEHICLES							100	

Other Considerations

Accident History :

Unusual Conditions :

Signed _____ Date _____ Title _____

Figure 8-4
VEHICLE SPEED SURVEY SHEET
(FOR 40 MPH AND UNDER)

Jurisdiction : _____

Residential Area or Subdivision : _____

VEHICLE SPEED DATA

Location : _____ Weather : _____

Record : _____ Date : _____ Begin Time : _____ End Time : _____

MPH	NUMBER OF VEHICLES	TOTAL OF EACH SPEED
40 & over		
35		
30		
25		
20		
15 & under		
MPH	TOTAL NUMBER OF VEHICLES OBSERVED	54

CRITICAL SPEED CALCULATION

Total 54 divided by 6 = 9
 Count this number of vehicles down from the highest speed observed to determine the critical speed

← **CRITICAL SPEED = 26 MPH**

Other Considerations :

Accident History : _____

Unusual Conditions : _____

Date : _____ Signed : _____ Title : _____

In determining the speed limit which is most appropriate to facilitate the orderly movement of traffic and is reasonable and prudent, important factors are prevailing speeds, unexpected conditions, and collision records.

Speed limits should be established at or near the 85 percentile speed, which is defined as that speed at or below which 85 percent of the traffic is moving. The 85 percentile speed is often referred to as the critical speed. Pace speed is defined as the 10-mile increment of speed containing the largest number of vehicles (See Figure 8-2). The lower limit of the pace is plotted on the Speed Zone Survey Sheets as an aid in determining the proper zone limits. Speed limits higher than the 85 percentile are not generally considered reasonable and prudent. Speed limits below the 85 percentile do not ordinarily facilitate the orderly movement of traffic and require constant enforcement to maintain compliance. Speed limits established on the basis of the 85th percentile conform to the consensus of those who drive highways as to what speed is reasonable and prudent, and are not dependent on the judgement of one or a few individuals.

The basic speed law states that no person shall drive at a speed greater than is reasonable or prudent. The majority of drivers comply with this law. Speed limits set at or slightly below the 85 percentile speed provide law enforcement officers with a means of controlling the drivers who will not conform to what the majority considers reasonable and prudent. Further studies have shown that establishing a speed limit at less than the 85th percentile (Critical Speed) generally results in an increase in accident rates.

When roadside development results in traffic conflicts and unusual conditions which are not readily apparent to drivers, as

indicated in the collision records, speed limits somewhat below the 85 percentile may be justified. Concurrence and support of enforcement officials are necessary for the successful operation of a restricted speed zone.

Speed zones of less than 0.8 km and short transition zones should be avoided.

2. City and County Through Highways, Arterials, Collector Roads and Local Streets.

a. Introduction - This is a short method of speed zoning based on the premise that a reasonable speed limit is one that conforms to the actual behavior of the majority of motorists, and that by measuring motorists' speeds, one will be able to select a speed limit that is both reasonable and effective. Other factors that need to be considered include but are not limited to; the most recent two year collision record, roadway design speed, safe stopping sight distance, superelevation, shoulder conditions, profile conditions, intersection spacing and offsets, commercial driveway characteristics, and pedestrian traffic in the roadway without sidewalks. In most situations, the short form will be adequate, but the procedure used on State highways may be used at the option of the local agency.

b. Determination of Existing Speed Limits -

Figures 8-3 and 8-4 show samples of data sheets which may be used to record speed observations. Specific types of vehicles may be tallied by use of letter symbols in appropriate squares.

The factors justifying a reduction below the 85th percentile speed in the speed limit are the same factors mentioned above. Whenever such factors are considered to establish the speed limit, they should be documented on the speed zone survey or the accompanying engineering report.

Generally, the most decisive evidence of conditions not apparent to the motorist surface in accident histories.

The establishment of a speed limit of more than 5 miles per hour (8 km/h) below the 85 percentile speed should be done with great care as studies have shown that establishing a speed limit at less than the 85th percentile generally results in an increase in accident rates, in addition, this may make violators of a disproportionate number of the reasonable majority of drivers.

C. *Truck Speed Zone on Descending Grades*

The grades which may require posting for downhill trucks are those grades on which there is some record of runaway commercial vehicles. Grades shorter than 1.6 km should not require posting since braking alone can generally provide sufficient control on so short a grade.

To establish a downhill truck speed limit, a physical profile showing length and gradient and a downhill speed profile for three or more axle commercial vehicles with a gross rating of 10,000 pounds (4,536 kg) or more will be provided. Speed profiles for truck speed limits shall be prepared on the same form as other speed surveys. An analysis of collisions involving trucks shall be prepared. Posted speeds should be on the low side of the scale, generally within the pace of loaded commercial vehicles. If warranted, the District Director shall issue a standard speed zone order.

Posting of the regulation will be by placement of a standard 900 mm x 1150 mm R2 speed limit sign with an R4 truck plate above. A standard R3 sign with an R4 truck plate shall be posted at the end of the truck zone when appropriate.

D. *Construction Speed Zones*

Construction speed zones are established on roads under construction where reduced speed is necessary to limit the risk of an accident to workers

and the traveling public during all hours of the day and night. Protection of workmen during working hours is provided for under CVC Section 22362. Construction speed zones should be avoided if traffic can be controlled by other means.

Where traffic obstructions exist only during the hours of construction, the speed zone signs shall be covered during nonworking hours. The traveled way should be signed and delineated to communicate physical conditions to the motorists such as curvature, narrow roadways, detours, rough roads, dips or humps, etc. The advisory speed plate (W6) may be used in combination with various warning type signs to decrease speed at a particular location. To preserve the effectiveness of this sign, it should not be used unless the condition to which it applies is immediate and will be experienced by all motorists.

The Road Work-Speed Limit sign (C17) should only be used when needed to reduce the risk of an accident to workers on the highway. It should be placed within 400 feet (122 m) of each end of the restricted zone and removed whenever the workers leave the area. The C17 signs shall not be used on State highway contracts.

The following instructions apply to construction speed zones:

1. Speed Limit and End Zone signs will be installed at locations jointly agreed upon by the Traffic Engineer and the Construction Engineer. The speed zone will be verified by an engineering and traffic survey.
2. The District Construction Engineer should advise the District Traffic Engineer as to the need for removal or relocation of the signs.
3. Orders for construction speed zones are ordinarily issued for the entire length of the construction project. This avoids the necessity and resulting delay of obtaining a new order each time the speed restriction signs require relocation to fit conditions. It is not the intention, however, that the entire length be posted for the duration of the

contract. Speed restriction signs shall be posted only in areas where the traveling public is affected by construction operations. As the construction progresses, signs should be moved as appropriate.

4. Signs shall be removed immediately following completion of the construction or change in the conditions for which they were installed.
5. When the construction is completed or the speed restriction is no longer necessary, the formal speed zone orders shall be revoked.

8-03.4 Speed Limit Signs and Markings

A. ***Legal Requirements.***

For the speed limit to be effective, applicable Vehicle Code sections require that prima facie speed limits established by the Department of Transportation or a local authority shall be posted with appropriate signs for the speed limit to be effective.

- B. ***Restricted Speed Limit Signs.*** Speed limit signs shall be placed at the beginning of all restricted speed zones. Where speed zones are longer than 1.6 km, intermediate signs may be placed at approximate 1.6 km intervals. For three or more lanes in each direction, dual installation may be used.

- C. ***“End ___ Speed Limit” (R3), or “Speed Limit ___” (R2) signs*** as appropriate shall be placed at the end of all restricted speed zones.

Those segments where a speed limit of 70 miles per hour (112 km/h) has been approved by the Department of Transportation, with approval by the California Highway Patrol, shall be posted as follows:

- At the segment entrance, ***“Speed Limit 70 MPH”*** signs (R2) shall be installed right of traffic off of the right shoulder.

- R2 (70) signs shall also be installed off of the right shoulder only, throughout the segment, at a maximum of 40 km intervals. The 40 km interval may be modified to include locations following entrance ramps from significant traffic generators.

- ***“Autos with Trailers, Trucks 55 Maximum”*** signs (R6-1) shall be installed approximately 230 m following each R2 (60, 65 or 70) sign, both at the beginning and throughout each 60 (96), 65 (104) or 70 (112) MPH (km/h) segment.

- ***“Slower Traffic Keep Right”*** signs (R56) may be installed at locations where there is a tendency of the motorists to drive in the left-hand lane(s) below the normal speed of traffic. Signs shall be placed in protected locations.

- At the end of the 70 MPH segment, ***“SPEED LIMIT ___ MPH”*** signs (R2) shall be installed off of the right shoulder.

Freeway segments where a 55 Miles Per hour speed limit has been approved by the Department of Transportation with the approval of the California Highway Patrol shall be posted as follows:

The beginning of the segment shall be posted with a R2(55) sign installed on the right shoulder and left shoulder where the median is of sufficient width to permit sign maintenance without lane closures. Subsequent signs should then be posted on the right shoulder, on approximate 4.8 km intervals, with no more than 3 interchanges between signs. At the end of the segment, a R2 sign with the appropriate number for the next speed limit should be posted on the right shoulder.

Conventional highways with 55 mile per hour (88 km/h) speed limits should be posted as follows: The beginning of the segment

shall be posted with a R2(55) sign installed on the right shoulder. Subsequent signs should then be posted on approximate 8 to 16 km intervals and immediately after locations where significant volumes of traffic enter the segment. At the end of the segment, a R2 sign with the appropriate number for the next speed limit should be posted on the right shoulder.

Conventional highways with 65 mile per hour (104 km/h) speed limits should be posted as follows: The beginning of the segment should be posted with a R2(65) sign installed on the right shoulder. Subsequent signs should then be posted at 8 to 16 km

intervals and after locations where significant volumes of traffic enter the segment. At the end of the segment, a R2 sign with the appropriate number for the next speed limit should be posted on the right shoulder.

D. ***Speed Limit Markings.*** Pavement markings with appropriate figures may be used to supplement speed limit signs.

E. ***State-line Signs.*** R2 and R6-1 signs giving maximum statewide speed limits for various types of vehicles shall be installed on various types of vehicles shall be installed on all State highways near the points of entrance into California. These signs should be placed in a location to be most effectively viewed by the approaching motorists.

Other Traffic Regulations 8-04

8-04.1 Through Highways

Sections 21352 and 21355 of the Vehicle Code provide for the installation of STOP signs either at or near the entrance to a State highway, except at signalized intersections, or at any location so as to control traffic within an intersection. When STOP signs have been erected at all entrances, a highway shall constitute a through highway.

Authority to place stop signs facing State highway traffic is delegated to the District Directors.

Section 21354 of the Code authorizes local authorities to establish through highways and install STOP signs in a like manner, but Section 21353 provides that no local authority may erect or maintain any STOP sign or other device requiring a stop, on any State highway, except by permission of the Department of Transportation. The Department will grant such permission only when an investigation indicates that the STOP sign will benefit traffic.

Authority to grant such permission is delegated to the District Directors.

8-04.2 One-Way Streets

Section 21657 of the Vehicle Code authorizes authorities in charge of any highway to designate, by ordinance or resolution, streets or highways for one-way traffic. No such ordinance or resolution is effective with respect to any State highway without the prior approval in writing of the Department. If, by local ordinance, a State highway through a city has been made one of a pair of one-way streets, the Commission may adopt the additional street into the State Highway System. This is done under Section 111.5 of the Streets and Highways Code.

8-04.3 Turning Movements

Sections 21451 and 21454 of the Vehicle Code provide that vehicular traffic may make a semi-circular or U-turn on a green signal or green arrow except where such turn is prohibited by signs.

Section 22113 of the Vehicle Code authorizes local authorities, by ordinance, to prohibit the making of any turning movements by any vehicle at any intersection or between any designated

intersections. No such ordinance shall be effective with respect to a State highway until approved by the Department of Transportation.

Section 21352 authorizes the Department to restrict turning movements on State highways.

A thorough investigation is necessary to determine whether or not the prohibited movements can be satisfactorily made at other locations without undue circuitry of travel.

8-04.4 Truck Routes and Size and Weight Limitations

Generally, the Department is not unilaterally authorized to prohibit truck travel on State highways. Various sections in the California Vehicle Code allow cities and counties to restrict, by ordinance, commercial vehicles subject to the specific conditions in those sections. Generally, no such local ordinance shall be effective with respect to any State highway until the ordinance has been approved by the Department. This approval can only be made by the Director of Transportation. The Traffic Operations Program, Office of Commercial Vehicle Operations is the Director's staff on these issues. This Office shall be contacted with respect to any proposals for truck limitations.

The proposed local ordinance must designate an unrestricted alternate route, or routes, for use by the prohibited vehicles. Such proposed local ordinances will not be approved unless the alternate route, or routes, are considered suitable by the department.

An investigation of designated alternate routes shall be made with special attention being given to the following features:

1. Geometrics.
2. Increase in distance of travel and comparisons in time of travel.
3. Railroad grade crossings.
4. Present traffic and practical capacity of proposed alternates.
5. Structural adequacy of pavement for heavy truck traffic.
6. Heavy grades.
7. Proximity to schools or school routes.
8. Developed residential areas.

8-04.5 Restrictions on Use of Freeways

Section 21960 of the Vehicle Code authorizes the Department of Transportation and local authorities, with respect to freeways under their respective jurisdictions, to prohibit or restrict the use of freeways by pedestrians, bicycles or other nonmotorized traffic or by any person operating a motor-driven cycle or a motorized bicycle.

No ordinance or resolution of local authorities shall apply to any State highway until the proposed ordinance or resolution has been presented to, and approved in writing by, the Department of Transportation. The District Directors have been delegated the authority to issue orders restricting the use of freeways. They are also authorized to approve orders, ordinances or resolutions of local authorities which would restrict the use of State highways.

It is the Department's policy to restrict the use of freeways when a satisfactory alternate route is available, which is nearly always the case. However, if circumstances require that there be no restriction, the Program Manager of Headquarters Traffic Operations Program shall be notified.